

SVP Series

Standard SMD type

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Use for surface mounted type switching power supplies.
This product can support lead free-reflow.(※2).



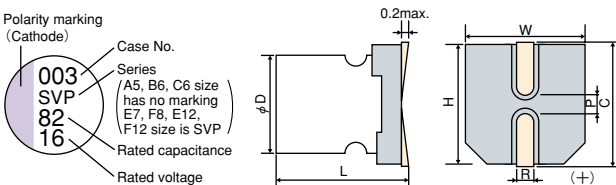
Specifications

Items	Conditions	Characteristics		
Category temperature range	—	-55°C to +105°C		
Tolerance on rated capacitance	120Hz	M: ±20%		
Tangent of loss angle	120Hz	Less than or equal to the value of Table8		
Leakage current ※1	After 2 minutes	Less than or equal to the value of Table8		
ESR	100KHz to 300KHz	Less than or equal to the value of Table8		
Characteristics of impedance ratio at high temp. and low temp.	Based the value at 100KHz, +20°C	-55°C	Z / Z _{20°C}	0.75 to 1.25
		+105°C	Z / Z _{20°C}	0.75 to 1.25
Endurance	105°C, 2,000h, Rated voltage applied (25V→20V applied)	ΔC/C	Within ±20%	
		tanδ	1.5 times or less than an initial standard	
		ESR	1.5 times or less than an initial standard	
		Leakage current	Below an initial standard	
Damp heat (Steady state)	60°C, 90 to 95%RH, 1,000h, No-applied voltage	ΔC/C	Within ±20%	
		tanδ	1.5 times or less than an initial standard	
		ESR	1.5 times or less than an initial standard	
		Leakage current	Below an initial standard (after voltage processing)	
Resistance to soldering heat ※2	VPS (230°C X 75s)	ΔC/C	Within ±10%	
		tanδ	1.3 times or less than an initial standard	
		ESR	1.3 times or less than an initial standard	
		Leakage current	Below an initial standard (after voltage processing)	

※1 In case of some problems for measured values, measure after applying rated voltage for 2.5 to 20V products or 20V for 25V products for 120 minutes at 105°C. (unit : mm)

※2 Refer to Page 14 for reflow soldering conditions.

Marking and dimensions



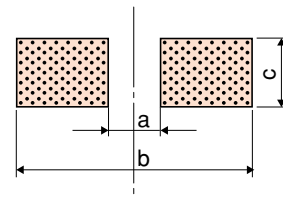
Size Code	φD±0.5	L ^{+0.1} _{-0.4}	W±0.2	H±0.2	C±0.2	R	P±0.2
A5	4.0	5.4	4.3	4.3	5.0	0.6 to 0.8	1.0
B6	5.0	5.9	5.3	5.3	6.0	0.6 to 0.8	1.4
C6	6.3	5.9	6.6	6.6	7.3	0.6 to 0.8	2.1
E7	8.0	6.9	8.3	8.3	9.0	0.6 to 0.8	3.2
F8	10.0	7.9	10.3	10.3	11.0	0.6 to 0.8	4.6
E12	8.0	11.9	8.3	8.3	9.0	0.8 to 1.1	3.2
F12	10.0	12.6	10.3	10.3	11.0	0.8 to 1.1	4.6

Size List

RV : Rated voltage (SV) : Surge voltage (Room temperature)

μF	RV (SV)	2.5 (3.3)	4 (5.2)	6.3 (8.2)	10 (12)	16 (18.4)	20 (23.0)	25 (25.0)
3.3						A5		
4.7					A5			
6.8					A5			C6
10					A5		B6	E7
15						B6		
22			A5			B6	C6	F8
27							C6	
33		A5			B6		E7	E12
39		B6				C6		
47			B6		C6		E7	
56				B6	C6		E7	F8
68		B6					F8	F12
82				C6		E7		
100				C6		F8		E12
120				C6				
150		C6			E7	F8		F12
180					E7,F8	F8		
220	C6					F8,E12		
270								
330			E7		F8	F8,E12	F12	
470				F8,E12				
560			E12		F12			
680	E12		F8					
820				F12				
1200		F12						
1500	F12							

Recommended land pattern dimension of PWB



(unit : mm)

Size Code	a	b	c
A5	1.0	6.2	1.6
B6	1.4	7.4	1.6
C6	2.1	9.1	1.6
E7	2.8	11.1	1.9
F8	4.3	13.1	1.9
E12	2.8	11.1	1.9
F12	4.3	13.1	1.9

※For the minimum packing quantity, please refer to page 57.

Table8 SVP Series Characteristics List

Size Code	Part Number	Rated voltage (V)	Rated Capacitance (μF)	ESR 100kHz to 300kHz (mΩ) (max.)	Rated ripple current (mA rms)	Tangent of loss angle (max.)	Leakage current (μA) (max.)※1
A5	16SVP3R3M	16	3.3	260	660	0.07	26.4
	10SVP4R7M	10	4.7	240	670	0.08	23.5
	10SVP6R8M	10	6.8	240	670	0.09	34.0
	10SVP10M	10	10	220	700	0.10	50.0
	10SVP15M	10	15	200	740	0.10	75.0
	6SVP22M	6.3	22	200	740	0.12	69.3
	4SVP33M	4	33	200	740	0.15	66.0
B6	20SVP10M	20	10	120	1020	0.10	100
	16SVP15M	16	15	120	1020	0.10	120
	16SVP22M	16	22	90	1060	0.10	176
	10SVP33M	10	33	70	1100	0.12	165
	6SVP47M	6.3	47	70	1100	0.12	148
	4SVP39M	4	39	70	1100	0.12	78
	4SVP68M	4	68	60	1400	0.12	136
C6	25SVP6R8M ※2	25	6.8	80	1200	0.10	85
	20SVP22M	20	22	60	1450	0.10	88
	20SVP27M	20	27	60	1450	0.10	108
	16SVP39M	16	39	50	1620	0.10	125
	10SVP47M	10	47	50	1620	0.12	94
	10SVP56M	10	56	45	1700	0.12	112
	6SVP82M	6.3	82	45	1700	0.12	103
	6SVP100M	6.3	100	40	1810	0.12	126
	6SVP120MV	6.3	120	17	2780	0.12	151
	4SVP150MX	4	150	40	1810	0.12	120
	2R5SVP220M	2.5	220	23	2390	0.12	110
E7	25SVP10M ※2	25	10	60	1500	0.10	125
	20SVP33M	20	33	45	1890	0.12	132
	20SVP47M	20	47	45	1890	0.12	188
	16SVP56M	16	56	45	1890	0.12	179
	16SVP82M	16	82	40	2120	0.12	262
	10SVP120M	10	120	35	2560	0.12	240
	10SVP150MX	10	150	35	2560	0.12	300
	6SVP220MX	6.3	220	35	2560	0.12	277
	4SVP330M	4	330	35	2560	0.12	264
	25SVP22M	25	22	50	2000	0.10	275
F8	20SVP56M ※2	20	56	40	2400	0.12	224
	20SVP68M	20	68	40	2400	0.12	272
	16SVP100M	16	100	35	2670	0.12	320
	16SVP150M	16	150	30	3020	0.12	480
	16SVP180MX	16	180	30	3020	0.12	576
	10SVP150M	10	150	30	3020	0.12	300
	10SVP270M	10	270	25	3700	0.12	540
	10SVP330MX	10	330	25	3700	0.12	660
	6SVP220M	6.3	220	25	3700	0.12	277
	6SVP330M	6.3	330	25	3700	0.12	416
	6SVP470MX	6.3	470	25	3700	0.12	592
	4SVP680M	4	680	25	3700	0.12	544
	E12	25SVP33M ※2	25	33	30	2980	0.12
20SVP100M		20	100	24	3320	0.15	400
16SVP180M		16	180	20	3640	0.15	576
10SVP330M		10	330	17	3950	0.15	660
6SVP470M		6.3	470	15	4210	0.15	592
4SVP560M		4	560	13	4520	0.15	448
2R5SVP680M		2.5	680	13	4520	0.15	340
25SVP56M ※2		25	56	28	3800	0.12	700
F12	20SVP150M	20	150	20	4320	0.15	600
	16SVP330M	16	330	16	4720	0.15	792
	10SVP560M	10	560	13	5230	0.15	840
	6SVP820M	6.3	820	12	5440	0.15	775
	4SVP1200M	4	1200	12	5440	0.18	960
	2R5SVP1500M	2.5	1500	12	5440	0.18	750

※1 After 2 minutes

※2 The surge voltage of 25V products is 25V. Please consider SVPD series 25V products (whose surge voltage is 29V) in placing a new order.

Frequency coefficient for ripple current

Frequency	120Hz ≤ f < 1kHz	1kHz ≤ f < 10kHz	10kHz ≤ f < 100kHz	100kHz ≤ f ≤ 500kHz
Coefficient	0.05	0.3	0.7	1